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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,361	03/29/2001	Noriaki Sakamoto	10417-074001	3784
26211	7590	07/14/2004	EXAMINER	
FISH & RICHARDSON P.C. 45 ROCKEFELLER PLAZA, SUITE 2800 NEW YORK, NY 10111			CHU, CHRIS C	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/821,361

Applicant(s)

SAKAMOTO ET AL.

Examiner

Chris C. Chu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4, 10 and 22 - 27 is/are pending in the application.
- 4a) Of the above claim(s) 10, 22 and 24 - 27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Election

1. Applicant's election without traverse of Species III in the reply filed on April 7, 2004 is acknowledged.

Response to Amendment

2. Applicant's amendment filed on April 1, 2002 has been received and entered in the case.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (U.S. Pat. No. 5,273,938) in view of Fjelstad (U.S. Pat. No. 6,001,671).

Regarding claim 4, Lin et al. discloses in e.g., Fig. 3 a semiconductor device comprising:

- a first (17) and a second (15) semiconductor chip which are electrically connected to each other;
- a first die pad (19 under the element 17) to which said first semiconductor chip is fixed;

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- a second die pad (19 under the element 15) to which said second semiconductor chip is fixed;
- at least one bridge (13, at the middle) arranged between said first and said second semiconductor chip and electrically connecting them;
- external connecting electrodes (13, located at the out-side of the elements 19 and surrounding the elements 19) provided to surround areas where said first and said second semiconductor chip are located, at least a portion of the rear surface of them serving as an electrode to be externally connected (see Fig. 6);
- first metallic wires (18, located at the out-side of the element 19) which electrically connect said first and said second semiconductor chip to said external connecting electrodes, respectively;
- second metallic wires (18, at the middle) which electrically connect said first semiconductor chip, said bridge and said second semiconductor chip; and
- insulating resin (20) which seals said first and said second semiconductor chip, said external connecting electrode, and said first and said second metallic wires,
- wherein said insulating resin (20) separates said first and second die pad, said bridge and said external connecting electrodes from one another, and said second metallic wires are coupled to said first and said second semiconductor chip using a ball bond and coupled to said bridge using a stitch bond.

However, Lin et al. does not disclose a plurality of recesses in a rear surface of said insulating resin, the rear surface of said first and second die pad and said external connecting electrodes being exposed within said recesses. Fjelstad teaches in e.g., Fig. 2E a plurality of

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recesses in a rear surface of an insulating resin (140 and 100'-polyimide), the rear surface of a die pad (115') and external connecting electrodes (110') being exposed within said recesses.

Thus, it would have been obvious to one of ordinary skill in the art at the time when the

invention was made to modify Lin et al. by forming the plurality of recesses at the bottom surface of the insulating resin corresponding to the first and second die pad and the external

connecting electrodes to expose the first and second die pad and the external connecting

electrodes from the insulating resin as taught by Fjelstad. The ordinary artisan would have been

motivated to modify Lin et al. in the manner described above for at least the purpose of

protecting the electrodes from the moisture in the air.

Furthermore, as to the language on lines 4 ~ 5 from the bottom of claim 4, "said second metallic wires are coupled to said first and said second semiconductor chip using a ball bond and coupled to said bridge using a stitch bond", even though product-by-process claim is limited by and defined by the process, determination of patentability is based upon the product itself. The patentability of a product does not depend on its method of production. If the product in product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process. In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted). A "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, **190 USPQ 15 at 17** (footnote 3). See also In re Brown, **173 USPQ 685**; In re Luck, **177 USPQ 523**; In re Fessmann, **180 USPQ 324**; In re Avery, **186 USPQ 116**; In re Wertheim, **191 USPQ 90** (**209 USPQ 254** does not deal with this issue); and In re Marosi et al., **218 USPQ 289** final product per se which must be determined in a "product by, all of" claim, and not the patentability of the process, and that an

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old or obvious product, whether claimed in "product by process" claims or not. Note that Applicant has the burden of proof in such cases, as the above caselaw makes clear.

Regarding claim 23, Lin et al. and Fjelstad disclose said recesses being formed by a portion of the rear surface of said insulating resin of which a back surface protrudes from the rear surface of said first and said second die pad and said external connecting electrodes.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

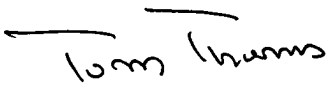
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is 571-272-1724. The examiner can normally be reached on 11:30 - 8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 517-272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chris C. Chu
Examiner
Art Unit 2815

c.c.
7/9/04 5:00:43 PM


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SUPERVISOR OF EXAMINERS
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